

## REMARKS

The issues outstanding in the Office Action mailed March 7, 2006, are the objection to claims and the rejections under 35 U.S.C §103. Reconsideration of these issues, in view of the following discussion, is respectfully requested.

### Objection to Claims

Claims 3-5 have been objected to as, it is argued at page 2 of the Office Action, they improperly broaden independent claim 21. Applicants respectfully, albeit quite strongly, disagree with this objection.

First, the Markush language "selected from the group consisting of...and..." is *equivalent* in scope to the phrase which does not employ the "consisting" terminology. For example, M.P.E.P. §2173.05(h) states that the Markush language "selected from the group consisting of a,b,c and d" is equivalent to "wherein R is a,b,c or d."

In any event, it is submitted that there is a fundamental misunderstanding of the scope of claims 3-5. Claims 3-5 recite species of the materials which are already recited in the Markush grouping in claim 21. For example, claim 3 recites the first 5 species listed in the Markush group in claim 21. Claim 4 recites various species of amino alcohol, amino alcohol being recited in claim 21 as the second to last member of the Markush group. Claim 5 recites amino alkoxy-silanes, such amino alkoxy-silanes being the last member of the Markush group. Thus, it is submitted that claims 3-5 are proper, and withdrawal of the objection is respectfully requested.

### Rejections Under 35 U.S.C §103

Claims 3, 4, 9, 10, 12, 15, 16 and 18-23 have been rejected under 35 U.S.C §103 over Ryan (EP '162) taken with Rony '307. Reconsideration of this rejection is respectfully requested.

Ryan et al. discloses a process for preparing supported hydroconversion catalyst and particularly hydrodenitrification catalyst containing at least one each of a compound of molybdenum or tungsten, said process comprising the steps:

- preparing an aqueous impregnating solution having a pH in the range of 0.7-2.7(in order to maintain the metals in solution during impregnation). See page 2, lines 54-60: The solution comprises:

- at least one each of a compound of Mo or W and of Co and/or Ni,
- a stabilizing amount of from 0, 2-1 mole of phosphorus per mole of Mo or W,
- and from 2-6% w, basis support of a "suitable (soluble) amine compound", see page 2 lines 57-59, amine alcohols i.e. ethanolamine, propanolamine, butanolamine, diethanolamine, 2,2-diamino-1,3-propanediol, 2,2,3-triamino-1-propanol or trietanamine and preferably ethylenediamine, see page 2, line 45-47;
- the solution is then impregnated on the support,
- the support is then dried and calcined.

According to the examples, see pages 8 lines 1-3 the catalysts are sulfided before the hydrotreating test with a  $H_2/H_2S$  (5% volume  $H_2S$ ) gaseous mixture at a temperature of 371°C for 2 hours.

According to Ryan et al., it was found that the HDN activity of a catalyst prepared with a solution containing both a phosphorus compound and an amine compound was greater than a catalyst prepared with only a phosphorus compound. (See page 3 lines 6-9)

It is accordingly clear that the presence of the soluble amine compound in the preparation solution is a critical feature for the reference Ryan et al. Moreover, all the examples according to the reference display the dissolution of the amine compound in the preparation solution and the simultaneous impregnation of the metals and organic compound.

Accordingly, it is submitted that Ryan fails to disclose or suggest a process such as that of claim 18 in which the organic compound, e.g., an amine, is present in the sulfurization feedstock and is deposited during the sulfurization stage.

Rony discloses a catalyst which maybe prepared employing a solvent dissolving or dispersing the metal catalytic component. See column 5, lines 5-7. From a long list of organic and inorganic solvents, spanning columns 5 and 6, a few amines are disclosed. On the one hand, it is not seen that there would be motivation for one of ordinary skill in the art to select these few species from the laundry list of Rony, for use in preparing the catalyst of Ryan. Moreover, even if one of ordinary skill in the art were to do so, Rony does not remedy the deficiency of Ryan in failing to suggest incorporation of the organic compound during sulfurization. Although the Office Action includes claim 19 in this rejection, said claim reciting that the organic compound is present in the sulfurization feedstock, and is deposited during the sulfurization stage (claim 19

is now incorporated in claim 18) the Office Action does not address the obviousness of this claim and, it is submitted, that the references, either singularly or in combination, fail to render the claim even *prima facie* obvious.

It is recognized that the present claim defines the catalyst in product by process language. It is moreover recognized that, as the PTO interprets such claims, patentability is based on the product, *per se*. Accordingly, a declaration is provided herewith, showing that the presently claimed product (defined by the process of its production) is *different* from one produced in the reference. Specifically, where a catalyst is produced in accordance with claim 21 in which the organic compound is incorporated during sulfurization, a *different* material is produced than one in which the organic compound is incorporated as taught in Ryan. The difference in the catalyst thus produced is evident from the notable difference in activities of catalysts in accordance with Ryan, for example, comparative catalysts C14 and C15, versus catalysts in accordance with the invention, for example, catalysts C10-C13. Accordingly, it is submitted that the rejection should be withdrawn.

With respect to independent claim 22, reciting the use of amino alkoxy-silane as the additive, such an additive is not disclosed in Ryan nor in Rony. Thus, this claim is patentable on this basis, alone. Similarly, new independent claim 24, reciting as the additive 2-(2-amino ethyl amino) ethanol is also patentable over the references, neither of which disclose such material.

Claims 6-8, 13-14 and 17 have also been rejected under 35 U.S.C. §103 over Ryan taken with Rony, and further in view of Shukis. The deficiencies of the combination of Ryan and Rony are discussed above. Shukis, cited solely for the use of various metals and other routine parameters, does nothing to remedy this deficiency. Indeed, Shukis discloses a catalyst comprising a porous support of alumina and a process for improving the activity of such catalyst, through the use of chelating compounds for impregnating support material. Thus, the patent does not suggest the use of an amine compound as an additive, as presently claimed. Accordingly, withdrawal of this rejection is also respectfully requested.

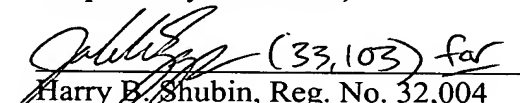
Finally, claim 5 has been rejected under 35 U.S.C. §103 over Ryan taken with Rony and Shukis, and further in view of Franzmann. Reconsideration of this rejection is also respectfully requested. Franzmann is cited solely for its disclosure of amino alkoxy-silane. However, as the Examiner admits at page 6 of the Office Action, Franzmann is directed to a method of immobilization of an enzyme to a substrate using an amino alkoxy-silane. The utility of the

compound to adhere an enzyme to silica is utterly irrelevant to the use alleged at the bottom of page 6 of the Office Action, that of adhering a metallic element to a poorer substrate for use as a catalyst. Franzmann is clearly directed to non-analogous art, and cannot be employed in the present rejection. It is also noted the deficiencies of the other references, discussed above, further militate the withdrawal of the rejection of claim 5. Withdrawal of this rejection is therefore respectfully requested.

The claims in the application are submitted to be in condition for allowance. However, if the Examiner has any questions or comments, she is cordially invited to telephone the undersigned at the number below.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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